Claims

I claim:

1. A method of assessing speech quality comprising the steps of:

determining a first and second speech quality assessment for a first and second speech signal, the first speech signal being a distorted version of the second speech signal; and

comparing the first and second speech qualities to obtain a compensated speech quality assessment.

2. The method of claim 1 comprising the additional steps of

prior to determining the first and second speech quality assessments, distorting the second speech signal to produce the first speech signal.

3. The method of claim 1, wherein the first and second speech qualities are assessed using an identical technique for objective speech quality assessment.

4. The method of claim 1, wherein the compensated speech quality assessment corresponds to a difference between the first and second speech qualities.

5. The method of claim 1, wherein the compensated speech quality assessment corresponds to a ratio between the first and second speech qualities.

6. The method of claim 1, wherein the first and second speech qualities are assessed using auditory-articulatory analysis.

7. The method of claim 1, wherein the step assessing the second or first speech quality comprises the steps of;

comparing articulation power and non-articulation power for the speech signal or distorted speech signal, wherein articulation and non-articulation powers

are powers associated with articulation and non-articulation frequencies of the speech signal or distorted speech signal; and

and assessing the second or first speech quality based on the comparison.

8. The method of claim 7, wherein the articulation frequencies are approximately 2~12.5 Hz.

9. The method of claim 7, wherein the articulation frequencies correspond approximately to a speed of human articulation.

10. The method of claim 7, wherein the non-articulation frequencies are approximately greater than the articulation frequencies.

11. The method of claim 7, wherein the comparison between the articulation power and non-articulation power is a ratio between the articulation power and non-articulation power.

12. The method of claim 10, wherein the ratio includes a denominator and numerator, the numerator including the articulation power and a small constant, the denominator including the non-articulation power plus the small constant.

13. The method of claim 7, wherein the comparison between the articulation power and non-articulation power is a difference between the articulation power and non-articulation power.

14. The method of claim 7, wherein the step of assessing the first or second speech quality includes the step of:

determining a local speech quality using the comparison.

15. The method of claim 7, wherein the local speech quality is further determined using a weighing factor based on a DC-component power.

16. The method of claim 9, wherein the first or second speech quality is determined using the local speech quality.

17. The method of claim 7, wherein the step of comparing articulation power and non-articulation power includes the step of:

performing a Fourier transform on each of a plurality of envelopes obtained from a plurality of critical band signals.

18. The method of claim 7, wherein the step of comparing articulation power and non-articulation power includes the step of:

filtering the speech signal to obtain a plurality of critical band signals.

19. The method of claim 18, wherein the step of comparing articulation power and non-articulation power includes the step of:

performing an envelope analysis on the plurality of critical band signals to obtain a plurality of modulation spectrums.

20. The method of claim 18, wherein the step of comparing articulation power and non-articulation power includes the step of:

performing a Fourier transform on each of the plurality of modulation spectrums.